

EXHIBIT 26



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re Application of:
GUSTAVO MATA ET AL.

Serial No.: 10/135,145

Filed: APRIL 30, 2002

For: AGENT REACTIVE SCHEDULING IN
AN AUTOMATED MANUFACTURING
ENVIRONMENT

Group Art Unit: 2125

Examiner: JAYPRAKASH N. GANDHI

Atty. Dkt. No.: 2000.079600/JAP

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RESPONSE TO OFFICE ACTION DATED AUGUST 21, 2003

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

CERTIFICATE OF MAILING 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on September 5, 2003.

Yolanda Murillo
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This paper is submitted in response to the Office Action dated August 21, 2003, ("Paper No. 5") for which the three-month date for response is November 21, 2003.

It is believed that no fee is due; however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason, the Assistant Commissioner is authorized to deduct said fees from Advanced Micro Devices, Inc. Deposit Account No. 01-0365/TT4739.

Reconsideration of the application is respectfully requested in light of the arguments presented below.

REMARKS

Claims 1-53 remain pending in the case, and all were rejected in Paper No. 5. More particularly, Paper No. 5 rejected:

- claims 1, 12, 19, 26, 33, and 44 as anticipated under 35 U.S.C. § 102 (b) by United States Letters Patent 5,444,632 (“Kline, *et al.*”); and
- claims 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53 as obvious under 35 U.S.C. § 103 (a) over Kline, *et al.*

Applicants traverse each of the rejections. Paper No. 5 failed to indicate whether the drawings have been accepted, and applicants request clarification of that issue.

I. CLAIMS 1, 12, 19, 26, AND 33 ARE NOVEL OVER KLINE, ET AL.

Paper No. 5 rejected claims 1, 12, 19, 26, 33, and 44 as anticipated under 35 U.S.C. § 102 (b) by United States Letters Patent 5,444,632 (“Kline, *et al.*”). Applicants traverse this rejection as predicated on a misconstruction of Kline, *et al.* and assert that the claims are novel over a proper construction of Kline, *et al.* Furthermore, Applicants respectfully submit that the rejection fails to *prima facie* establish that the claims are anticipated.

A. The Rejections are Predicated on a Misconstruction of Kline, *et al.*

In rejecting claims 1, 12, 19, 26, 33, and 44 as anticipated under 35 U.S.C. § 102 (b) by United States Letters Patent 5,444,632 (“Kline, *et al.*”), Paper No. 5 stated only that:

Kline discloses a method, computer-readable, and a computer system for scheduling in an automated manufacturing environment as shown figures 1-3, detecting an occurrence (figure 3, 104 to 102), scheduling agent 250 being notified.

Detailed Action, p. 2, ¶ 2. Thus, the Office incorrectly equates the relationship between the wafer specification module 104 and the schedule interpreter 102 in Figure 3 with “detecting an occurrence of a predetermined event” and the scheduling agent 250 with the “software scheduling agent(s)” recited in the claims.

The relationship between the wafer specification module 104 and the schedule interpreter 102 in Figure 3 is described in the specification:

Additionally, the scheduler module 110 is connected to the wafer specification module 104 in order to receive data, for example, the

sequence of steps, for example pattern, etch, deposit, etc. for the lot in the factory in terms of various process resources in order to transform for example the raw unprocessed wafers into completed wafers.

Col. 4, lines 38-45. Subsequent discussions of the role of the wafer specification module 104 support this characterization, of the wafer specification module as an information provider. (col. 4, lines 63-68; col. 7, lines 10-16; and col. 7, lines 27-30) Thus, the only reasonable construction is that the wafer specification module 104 is simply a repository of wafer specifications.

Presumably, the Office relies on the legend “STATUS CHANGES (HOLD SCRAP)” in Figure 3 for its incorrect construction. However, nothing in Kline, *et al.* supports the Office’s inference that the legend teaches detection of an event, as opposed to, for example, teaching the kinds of wafer specifications that might be stored in Kline, *et al.* The specification contains no explanation of this legend. The Office’s inference is actually contrary to the rest of Kline, *et al.* The teachings of a prior art reference must be taken as a whole when evaluating obviousness rather than considered in bits and pieces. *Panduit Corp. v. Dennison Mfg. Co.*, 1 U.S.P.Q.2d (BNA) 1593, 1597 (Fed. Cir.), *cert. denied*, — U.S. —, 107 S. Ct. 2187 (1987). As established above, when Kline, *et al.* is taken as a whole, it fails to teach that the wafer specification module 104 is anything other than an information provider. Accordingly, Applicants respectfully submit that the Office’s inference is in fact an exercise of hindsight bootstrapped from Applicants’ own disclosure.

In addition to the misconstruction of the wafer specification module 104, the Office has misconstrued the element 250 in Kline, *et al.* The Office in Paper No. 5 clearly identifies the element 250 as a “scheduling agent.” However, Figure 1 just as clearly labels the element 250 a workstation, which is described in col. 4, at lines 27-33 with respect to Figure 2 as a computing apparatus operated by a user. Furthermore, the workstation 250 is unambiguously identified as but a part of the scheduler module 110. Presumably, the scheduler module 110, as a whole, possesses the functionality that the Office associates with the “software scheduling agent(s)” recited in the claims. If so, the scheduler module 110 cannot rationally be construed as a “software scheduling agent” since it includes not only significant hardware components as illustrated in Figure 1, but a user as illustrated in Figure 2. Even if the Office maintains that the workstation 250 is a “scheduling agent,” it cannot be a “software scheduling agent” since it includes a user and significant hardware components. Since the Office’s construction of the

workstation 250 is contrary to the actual disclosure of Kline, *et al.*, Applicants' respectfully submit that this misconstruction also arises in hindsight from Applicants' disclosure.

The Office's rejection of claims 1, 12, 19, 26, 33, and 44 as anticipated under 35 U.S.C. § 102 (b) by United States Letters Patent 5,444,632 ("Kline, *et al.*") is therefore predicated on two major misconstructions of Kline, *et al.* As is set forth above, Applicants believe these misconstructions arise from hindsight interpretation of Kline, *et al.* in light of Applicants' disclosure. As is set forth below, upon proper construction, Kline, *et al.* fails to disclose every element of Applicants' invention. Applicants therefore respectfully submit that the anticipation rejection of claims 1, 12, 19, 26, 33, and 44 is improvident and request that it be withdrawn.

B. Claims 1, 12, 19, 26, and 33 are Novel Over a Proper Construction of Kline, *et al.*

Claims 1, 12, 19, 26, 33, and 44 are novel over Kline, *et al.* when Kline, *et al.* is properly construed. In particular, Kline, *et al.* fails to disclose the limitation "software scheduling agent(s)", recited in the singular or the plural in each of the independent claims¹. See cl. 1, at line 4; cl. 12, line 5; cl. 19, line 4; cl. 26, line 4; cl. 33, line 3; and cl. 44, at line 4. Applicants described "software scheduling agents" in their specification at p. 10, lines 13-31:

Referring now to **FIG. 1** and **FIG. 2**, the software agents 265 each represent some "manufacturing domain entity," *e.g.*, a lot 130, a process tool 115, a resource, a PM, or a Qual. ...The software agents 265, collectively, are responsible for efficiently scheduling and controlling the lots 130 of wafers 135 through the fabrication process.

...Of particular interest to the present invention, the software agents 265 reactively schedule, initiate, and execute activities on behalf of their respective manufacturing domain entities.

Thus, "software scheduling agents" possess three characteristics:

- as the phrase implies, they are implemented in software;
- **they represent some respective manufacturing domain entity;** and

¹ Applicants note that other limitations are also not shown. However, a single such deficiency is sufficient to obviate the anticipation rejection. *In re Bond*, 15 U.S.P.Q. 2d (BNA) 1566, 1567 (Fed. Cir. 1997) (an anticipating reference must disclose every limitation of the claim).

they reactively schedule.

When Kline, *et al.* is properly construed, it fails to disclose this limitation of each of the independent claims.

Applicants' review of Kline, *et al.* fails to identify any "software scheduling agent." In general, the scheduling functionality is performed by the scheduler module 110, which is implemented in hardware as well as software. (col. 4, lines 3-33) Furthermore, the software components involved in scheduling do not represent respective manufacturing domain entities, but rather operate across the whole fab. (col. 4, line 57 to col. 6, line 48; Figure 4) Kline, *et al.* does disclose one object that it labels an "agent," but it merely provides and/or obtains information and does not schedule. (col. 7, lines 16-58) As established above, the workstation 250 identified in Paper No. 5 as a "scheduling agent" is not a "software scheduling agent" because it is implemented not only in hardware, but also includes a human user. (col. 4, lines 7-33; Figure 1 – Figure 2)

C. The Office Failed to Establish *Prima Facie* That Claims 1, 12, 19, 26, and 33 are Anticipated

"It is by now well settled that the burden of establishing a *prima facie* case of anticipation resides with the Patent and Trademark Office. *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984) quoting *In re Warner*, 379 F.2d 1011, 1016, 154 U.S.P.Q. 173, 177 (C.C.P.A. 1967); *Ex parte Skinner*, 2 U.S.P.Q.2d (BNA) 1788, 1788-89 (Bd. Pat. App. & Int. 1987). In doing so, "...it is incumbent upon the [Office] to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 U.S.P.Q.2d (BNA) 1461, 1462 (Pat. & Tm. Off. Bd. Pat. App. & Int. 1990). However, the Office's rejection fell short of this standard.

In rejecting claims 1, 12, 19, 26, 33, and 44 as anticipated under 35 U.S.C. § 102 (b) by United States Letters Patent 5,444,632 ("Kline, *et al.*"), Paper No. 5 stated only that:

Kline discloses a method, computer-readable, and a computer system for scheduling in an automated manufacturing environment as shown figures 1-3, detecting an occurrence (figure 3, 104 to 102), scheduling agent 250 being notified.

Detailed Action, p. 2, ¶ 2. Applicants respectfully submit that this rejection fails in that it:

- fails to identify where Kline, *et al.* discloses “notifying a software scheduling agent of the occurrence” as recited in cl. 1, at line 4; cl. 12, line 5; cl. 19, line 4; cl. 23, by virtue of its dependence from cl. 19; and cl. 26, line 4;
- fails to explain how the relationship between the wafer specification module 104 and the schedule interpreter 102 in Figure 3 constitutes “detecting an occurrence of a predetermined event” as recited in cl. 1, at line 3; cl. 12, line 4; cl. 19, line 3; cl. 23, by virtue of its dependence from cl. 19; and cl. 26, line 3; when that relationship is described in the specification as simply transferring stored information regarding wafer specifications at col. 4, lines 38-45;
- fails to identify a “software scheduling agent” or agents as recited in cl. 1, at line 4; cl. 12, line 5; cl. 19, line 4; cl. 23, by virtue of its dependence from cl. 19; and cl. 26, line 4; cl. 33, line 3; and cl. 44, at line 4;
- fails even to allege that, must less identify where, Kline, *et al.* teaches scheduling responsive to the detection of the event as recited in cl. 1, at lines 5-6; cl. 12, lines 6-7; cl. 19, lines 5-6; cl. 23, by virtue of its dependence from cl. 19; and cl. 26, lines 5-6; cl. 33, lines 5-6; and cl. 44, at lines 6-7; or
- fails even to allege that, must less identify where, Kline, *et al.* teaches any of the limitations recited in cl. 23 over and above the limitations of cl. 23 incorporated from cl. 19 by virtue of its dependence therefrom.

Applicants therefore respectfully submit that the Office has failed to meet the standard of *Ex parte Levy* and, hence, has failed to establish that Kline, *et al.* anticipates claims 1, 12, 19, 26, 33, and 44.

II. CLAIMS 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53 ARE ALLOWABLE UNDER 35 U.S.C. § 103 (a) OVER KLINE, ET AL.

The Office rejected claims 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53 as obvious under 35 U.S.C. § 103 (a) over Kline, *et al.* The relevant inquiry is whether the prior art suggests the invention and whether the prior art would have provided one of ordinary skill in the art with a reasonable expectation of success. *In re O’Farrell*, 7 USPQ2d 1673 (Fed. Cir. 1988). Both the suggestion and the reasonable expectation of success must be founded in the prior art and not in the Applicant’s disclosure. *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991). Applicants

respectfully submit that this rejection fails for three reasons. First, Kline, *et al.* fails to teach or suggest all of the limitations of the claims. Second, the rejection relies on the misconstruction of Kline, *et al.* discussed above, bootstrapped from Applicants' disclosure. Third, the rejection employs the wrong standard for "obviousness" and impermissibly shifts the burden to Applicants to establish *prima facie* the non-obviousness of the claims.

A. Kline, *et al.* Fails to Teach or Suggest All the Limitations of the Claims

Kline, *et al.* fails to teach or suggest all the limitations of claims 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53. Each of the independent claims 1, 12, 19, 26, 33, and 44 each recite "software scheduling agent(s)" in either the singular or the plural. Each of claims 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53 are also limited by this recitation through their dependence from one of these independent claims. 35 U.S.C. § 112, ¶ 4. As established above, Kline, *et al.* does not teach or suggest the use of "software scheduling agents." Thus, Kline, *et al.* fails to teach or suggest all the limitations of claims 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53.

B. The Rejection Relies on a Misconstruction of Kline, *et al.*

The rejection relies on one of the misconstructions of Kline, *et al.* discussed above. Paper No. 5 states:

As stated above Kline discloses all the claimed method as well as computer system for an automated manufacturing environment including in a very broad term an occurrence (status changes, figure 3) except point out specific detected occurrence as claimed by applicant.

Detailed Action, pp. 2-3, ¶ 4. As Applicants established above, this is a misconstruction of the relationship between the wafer specification module 104 and the schedule interpreter 102 in Figure 3. The wafer specification module 104 is clearly an information repository providing information when asked. (col. 4, lines 38-45, 63-68; col. 7, lines 10-16; and col. 7, lines 27-30) Nothing in Kline, *et al.* supports the inference that the legend teaches detection of an event, as opposed to, for example, teaching the kinds of wafer specifications that might be stored in Kline, *et al.* The specification contains no explanation of this legend.

The Office's inference is actually contrary to the rest of Kline, *et al.* The teachings of a prior art reference must be taken as a whole when evaluating obviousness rather than considered

in bits and pieces. *Panduit Corp. v. Dennison Mfg. Co.*, 1 U.S.P.Q.2d (BNA) 1593, 1597 (Fed. Cir.), *cert. denied*, — U.S. —, 107 S. Ct. 2187 (1987). Accordingly, Applicants respectfully submit that the Office's inference is in fact an exercise of hindsight bootstrapped from Applicants' own disclosure.

C. The Rejection Employs the Wrong Standard for Obviousness and Improperly Shifts the Burden to Applicants to Prove Non-Obviousness

The rejection also employs the wrong standard for "obviousness" and improperly shifts the burden to Applicants to prove "non-obviousness." Paper No. 5, in rejecting claims 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53 as obvious, stated:

Applicant demonstrated no criticality on these elements, so it would have been obvious to one of ordinary skill in the art to make occurrence to be detected as required during different manufacturing stage to correct and optimize overall scheduling system.

Detailed Action, pp. 2-3, ¶ 4. "Criticality" is the wrong standard for obviousness whose application is reversible error. *Cf., inter alia, In re Clinton*, 188 U.S.P.Q. (BNA) 365, 367 (C.C.P.A. 1976); *In re Dow Chem. Co.*, 5 U.S.P.Q.2d (BNA) 1529, 1532 (Fed. Cir. 1989); *In re Fine*, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988); *In re Antoine*, 195 U.S.P.Q. 6 (C.C.P.A. 1977); *In re Tomlinson*, 150 U.S.P.Q. 623 (C.C.P.A. 1966).

Admittedly, "criticality" can sometimes be an issue in an obvious determinations:

Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

M.P.E.P. § 2144.05. Note, however, that "criticality" is an issue in *rebuttal* of a *prima facie* case. The *prima facie* case, in this instance, is the disclosure of a claimed range of values by a range already in the prior art:

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. Similarly, a *prima facie* case of obviousness exists where

the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties.

"[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." However, if the reference's disclosed range is so broad as to encompass a very large number of possible distinct compositions, this might present a situation analogous to the obviousness of a species when the prior art broadly discloses a genus.

M.P.E.P. § 2144.05 (citations omitted). Applicants are not trying to claim any range of values in any of claims 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53, and so "criticality" is not an issue.

In essence, the Office is impermissibly attempting to shift the burden to Applicants. Paper No. 5, relying on the misconstruction discussed above, admits that Kline, *et al.* fails to "...[point] out specific detected occurrence as claimed by Applicant. Detailed Action, pp. 2-3, ¶ 4. Thus, even an analogy to the range cases in which criticality is an issue would be inapposite *because they require a teaching or suggestion in the prior art of the claimed limitation*, which the Office admits is not present. The Office is essentially requiring Applicants to produce secondary indicia of non-obviousness when the obviousness of the claims has not yet been *prima facie* established. Thus, the Office is impermissibly shifting its burden to *prima facie* establish the obviousness of the claims to Applicant to prove *prima facie* the non-obviousness of the claims. Applicants respectfully submit that the obvious rejection is improvident and should be withdrawn.

CONCLUSION

Applicants do not amend the claims, and traverse each of the rejections. Applicants traverse the rejection of claims 1, 12, 19, 26, 33, and 44 as anticipated under 35 U.S.C. § 102 (b) by United States Letters Patent 5,444,632 ("Kline, *et al.*") because:

- the rejection relies on a misconstruction of Kline, *et al.* bootstrapped from Applicants' own disclosure;
- when Kline, *et al.* is properly construed, it fails to disclose all the limitations of the claims; and
- the *prima facie* case is deficient because the Office has failed to identify where Kline, *et al.* allegedly teaches the limitations of the various claims.


Applicants traverse the rejection of claims 2-11, 13-18, 20-25, 27-32, 34-43, and 45-53 as obvious under 35 U.S.C. § 103 (a) over Kline, *et al.* because:

- when properly construed, Kline, et al. does not teach or suggest all the limitations of the claims;
- it relies on the same misconstruction of Kline, et al. upon which the anticipation rejections rely; and
- it employs the wrong standard for “obviousness” and impermissibly shifts the burden to Applicants to establish *prima facie* the non-obviousness of the claims.

Applicants therefore respectfully submit that the claims are allowable and that the application is in condition for allowance. Accordingly, Applicants request that the application be allowed to issue.

The Examiner is invited to contact the undersigned attorney at (713) 934-4053 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



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